

## POTT'S DISEASE

### Analysis of One Hundred Cases Followed Longer Than Twelve Months

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*The retrospective analysis of one hundred and sixty seven patients that were treated in Hacettepe University hospitals is presented. One hundred patients that had been followed more than twelve months were included in this study for analysis.*

*Average patient age was 21.2 years, ranging between 2 and 66 years. Average follow-up was 49.2 months, ranging from 12 to 253 months.*

*Patients were divided into three groups depending on the treatment given. The first group consisted of eleven patients that only were given medical treatment, the second group of fifty-six patients, that had in-situ posterior fusions along with medical treatment, and the third group included thirty three patients for whom drainage and fusion procedures were utilised.*

*Thirty-three patients had varying degrees of neurologic symptoms at presentation, twenty-five completely resolved, six improved, and two patients neurologic status had deteriorated by treatment.*

*The patients were evaluated for their neurologic functional and medical outcomes. It was concluded that, the neurologic involvement due to pott's disease is a relatively benign condition independent from the type of surgery utilised, but complete debridement and drainage of the lesions offered better chances for functional recovery.*

Pott's disease is one of the most common extrapulmonary manifestations of tuberculosis. For the last three decades the natural history and effects of different treatment modalities have been analysed intensively by the Medical Research Council (MRC) Working Party on Tuberculosis of the Spine. MRC studies demonstrated the efficacy of outpatient conservative treatment, in an effort to simplify the treatment of spinal tuberculosis.

After the description of posterior spinal fusion techniques by Hibbs and Albee, these have remained the gold standard in the treatment of spinal tuberculosis for decades. In 1950, Wilkinson described the cottoransversectomy and curettage technique for spinal tuberculosis. In 1960's Hogston popularised the anterior approach for debridement and drainage of tuberculosis abscess, as well as for grafting the necrotic vertebral bodies. In 1989, Korkusuz and associates reported their experience on extra pleural anterior decompression.

The complication of surgical treatment have urged the clinicians to search for equally effective regimens of conservative treatment, especially in under developed countries, and the MRC studies, already mentioned above seems to have been demonstrated the efficacy of conservative, ambulatory treatment.

The retrospective analysis of patients that were treated in our hospital is presented here comparing the neurologic, medical and functional outcomes with different types of treatment.

#### MATERIALS and METHODS

One hundred and sixty-seven cases of vertebral tuberculosis were evaluated and had treatment in the Hospitals of Hacettepe University, from 1968 to 1991. Average age for these patients was 22.8 years, ranging from 2 to 66 years. One hundred patients that had been followed for more than twelve months was included in our study, the majority of the other patients having been lost to follow-up.

The average age in our study group was 21.2 years, the youngest patient being 2 years old and the oldest 66 years old. The age distribution peaked at the first decade of life and after the fourth decade. Fifty-six patients were females and the rest males. The average period between the onset of the symptoms and referral to our hospital was 17.3 months (median 5.6 mos.), the latest was two hundred and sixteen months, that had inadequate conservative treatment elsewhere.

Patients pre and post-operative neurologic status were analysed and graded by the system advocated by Frankel. Thirtythree patients had some neurologic involvement at the time of admittance to our hospital, one of these was grade A, two were grade B, thirteen

were grade C and seventeen were grade D. The symptoms in twenty-five patients completely resolved in an average period of four weeks from the onset of therapy. Six patients had some improvement, two from grade B to grade D, six from grade C to grade D, and two patients deteriorated, one from B to A, the other from C to B.

Nineteen patients had severe kyphotic and/or scoliotic deformities at the time of last follow-up visits and five patients had still draining fistulas.

The minimum follow-up for this study was twelve months, average follow-up being 49.2+/-47.6 months. The patients were divided into three groups according to the treatment they had, the first group consisted of eleven patients that had only ambulatory medical treatment, the second group of fifty-six patients, that only had in-situ posterior fusions, and the third group of thirty-three patients, for whom debridement and drainage of the lesions were performed by anterior or posterolateral approaches. The average follow-up periods were 63.3+/-38.8 months for the first group, 59.0+/-56.5 for the second and 28.0+/-18.7 months for the third group.

All but five patients were immobilized, ten of them by braces and eighty-five by casts, for periods ranging between three to twenty months. All patients had medical treatment for periods ranging from six to twenty-four months. There were no complications that are attributable to surgery in the study group, with the exception of two patients that deteriorated neurologically which might have been because of inadequate decompression, two patients had hepatotoxic side effects because of medical treatment.

## RESULTS

The average follow-up periods in the first and second groups were longer than that of the third group and this difference was found to be significant.

Thirty-three patients had neurologic symptoms at the time of admittance to our center. One patient was Frankel grade A, two were grade B, Thirteen were grade C and seventeen grade D. Twenty-five of these completely resolved, six improved and two deteriorated. In the first group of patients there were five patients with neurologic involvement three of them grade C and two grade D, four of which completely resolved and one grade C patient improved to grade D. In the second group there were fourteen patients, one grade B, three grade C and ten grade D. Twelve resolved, one patients was improved and one patient deteriorated

in this group. There were also fourteen patients with neurologic symptoms in the third group, one of them grade A, two grade B, seven grade C and four of them were grade D. Symptoms in nine patients were completely resolved, four improved, and one deteriorated. The frequency of patients with neurologic involvement were slightly higher in the first and the third groups, and more severe in the third group, but there were no statistical differences between the groups concerning the rates of total or partial improvement ( $p = 0.38270$ ).

There were no significant differences between the groups concerning the period of immobilization, though it was slightly shorter in the first and the third groups ( $p = 0.10631$ ).

A total of seventeen patients had severe deformities, ten of which occurred in skeletally immature patients while skeletally immature patients consisted 46 percent of the whole patient population, but the difference was not significant ( $p = 0.38912$ ).

Fourteen of the deformities were in the second group and three were in the third group, but no significance could be demonstrated. Apart from the deformities, three patient complained of pain below the fusion area.

Five patients had draining fistulas at the date of their last follow-up visits, and additional four patients stated that they had draining fistulas some time after their surgical treatment. All but one of these nine patients were in the second group, one in the third group, but this difference could not be proven to be significant either ( $p = 0.1629$ ).

## DISCUSSION

It can be clearly seen that no differences in the functional, neurologic or medical outcomes of the patients could be demonstrated when different types of treatment are compared.

The neurologic deficits caused by vertebral tuberculosis appears to be a relatively benign condition as has been stated in the literature. Ninety-four percent of our patients were improved regardless of the treatment employed, and seventy-five percent had total improvements.

The immobilization periods in patients that had undergone debridement of the lesions appear to be slightly shorter. In the second group of patients that did not have surgical drainage, a substantial amount had spontaneous drainage of their lesions, frequently causing fistulas. Especially in those patients with proven paravertebral abscess the surgical drainage of this lesion

should be given serious consideration.

The incidence of deformities caused by Pott's disease were also slightly higher in the posterior fusion group, most of these accounting for skeletal immature patients. We think that anterior strut grafting should be performed for these patients that are already kyphotic at the time of presentation along with posterior fusions.

It is concluded that anterior drainage offered slightly better chances of functional recovery, though posterior fusions or nonoperative treatment appears to be nearly as good. The decision for the selection of treatment should be given on individual basis, with special attention directed to the presence of kyphotic deformities especially in skeletal immature patients, and the presence of paravertebral abscess.

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